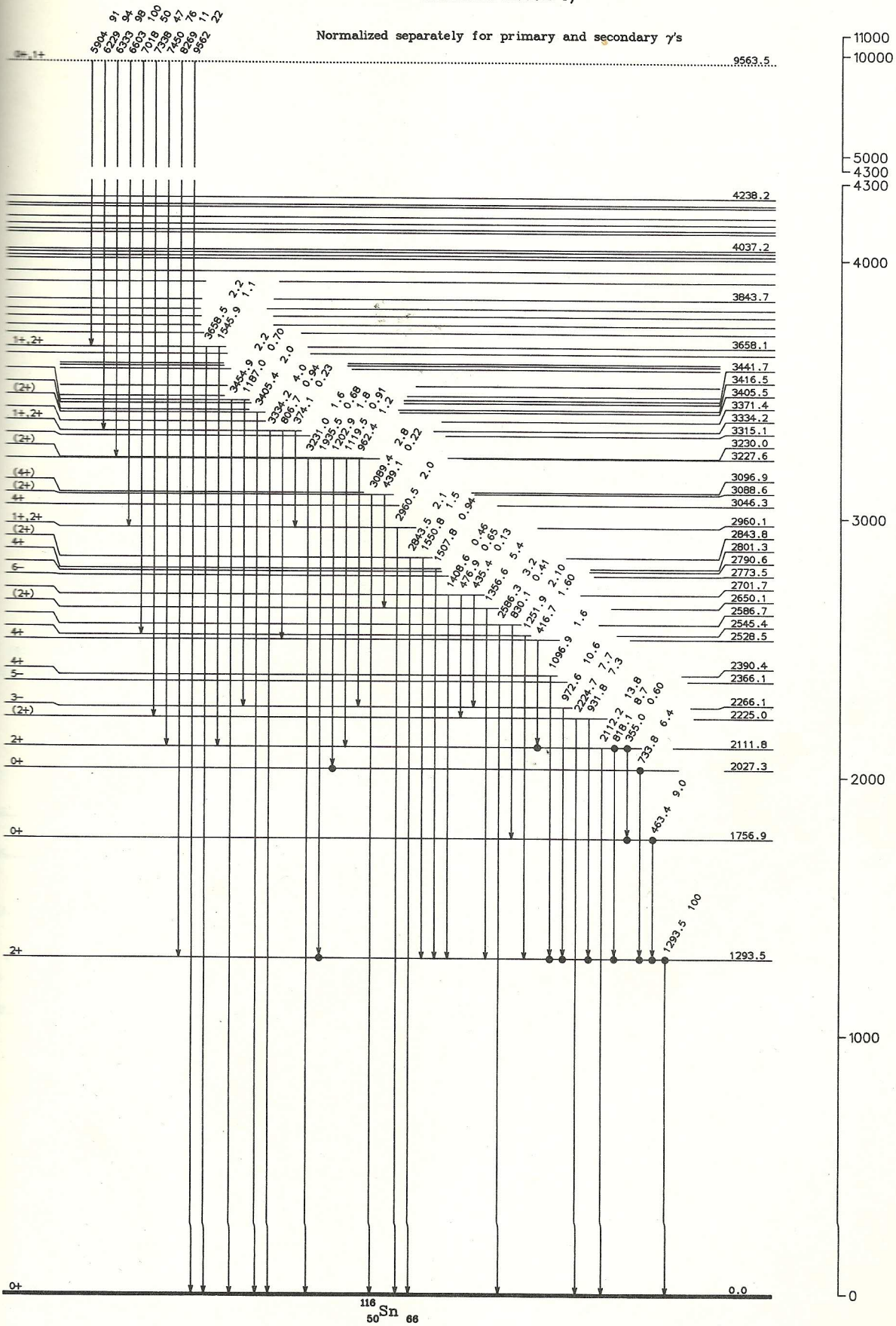


$^{115}\text{Sn}(n,\gamma)$
72Mc08, 78CaZ0

Intensities: relative I_γ

Normalized separately for primary and secondary γ's



¹¹⁶Sn adopted levels

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Q(β⁻)=-4600 40; S(n)=9563.5 3; S(p)=9275 8; Q(α)=-3373 5 77Wa08, 78CaZ0 (S(n)).

E(level)	J _π	T _{1/2}	Comments
0.0	0+	stable	J _π : see 76Fu06.
1293.54 2	2+	0.40 ps 2	Q=-0.17 4. Q: from 76Li19,78LeZA; others: +0.07 10 (75Gr30), +0.09 13 (70K106). J _π : level is Coulomb excited. T _{1/2} : from Coul. Ex., B(E2) (0-2)=0.195 (75Gr30); others: 0.49 ps 9 (62Li10), 0.44 ps 19 (62Ka28), 0.33 ps 7 (63Be14), 0.37 ps 4 (77Ca14) via res fluorescence.
1756.78† 5	0+	45 ps 10	J _π : E0 to g.s.
2027.3 4	0+	160 ps 20	T _{1/2} : from 78Ju02. J _π : E0 to g.s.
2112.26† 6	2+		T _{1/2} : from 78Ju02.
2225.35 5	2+		J _π : strong γ to g.s. and from 4+, γγ(θ).
2266.09 2	3-		J _π : L(p,d)=2, log ft=4.7 from 3+ parent, γ to 0+.
2365.92 5	5-	335 ns 50	J _π : E1 γ to 2+, σ(θ) in (p,p'), (972γ) (1293γ) (θ). Q=±0.26 1; μ=-0.376 3 (78LeZA). J _π : E2 γ to 3-, E3 γ to 2+, γγ(θ).
2390.8 6	4+	0.28 ps 14	T _{1/2} : from 78VaZK. J _π : γγ(θ) in p,p'(θ), (1097γ) (1293γ) (θ).
2392.22 8	4+		T _{1/2} : from 72Ka66, res fluorescence.
2529.12† 6	4+	<100 ps	J _π : E2 γ to 2+.
2546.0 5			J _π : E2 γ to 2+, (417γ) (2112γ) (θ).
2586.7 4			T _{1/2} : from β(417γ) coin (79Ka01).
2650.5 3	(2+)		Seen in ¹¹⁶ In (14.1-s) decay.
2701.7 5			Seen in (n,γ).
2773.25 10	6-		J _π : L(p,p')=2.
2790.6 5			Seen in (n,γ).
2801.7 4	4+		J _π : M1 γ to 5-, (407γ) (1072γ) (θ), (407γ) (100γ) (θ).
2843.5 5	(2+)		Seen in (n,γ).
2908.8 1	7-	0.5 ns 3	J _π : E2 γ to 2+, L(p,p')=4, L(p,t)=4, (1508γ) (1293γ) (θ). J _π : L(p,p')=2.
2960.1 3	1+,2+		J _π : M1 γ to 6-, log ft=4.9 from 8- parent, (543γ) (1072γ) (θ), (135γ) (407γ) (θ).
3033.2† 5	6+		T _{1/2} : from 78VaZK, 66Rg02.
3046.51 23	4+		J _π : γ to g.s. in (n,γ).
3088.6 5	(2+)		J _π : E2 γ's to 4+.
3096.63 18	(4+)		J _π : log ft=5 from 5+ parent, strong γ to 2+ level.
3105.6 5	(7-)		J _π : γ to g.s. in (n,γ).
3209.9 5	7-	<0.5 ns	J _π : log ft=5.6 from 5+ parent.
3227.9 5	8-		Seen in (α,2nγ) (78VaZK).
3230.0 5	(2+)		J _π : E2 γ to 5-, log ft=5.6 from 8- parent.
3276.7 5			T _{1/2} : from 66Rg02.
3315.1 3			J _π : M1 γ to 7-.
3334.2 10	1+,2+		Seen in (n,γ).
3371.4 3			
3405.5	(2+)		J _π : L(p,t)=2.
3416.5 3			
3441.7 3			
3453.0 3			
3469.8 3			
3492.9 5	8+		J _π : E1 γ to 7-.
3508.4 5			
3522.5 5	9-		J _π : M1 γ to 8-.
3547.0 5	10+	833 ns 30	Q=±0.50 (75Di02); μ=-2.326 15 (78LeZA). Seen in (α,2nγ) (78VaZK). T _{1/2} : from 78VaZK (time distribution/beam burst of cyclotron).
3573.0 3			
3586.5 3			
3595.3 3			
3632.3 3			
3658.1 3	1+,2+		
3712.0 3			

Continued on next page (footnotes at end of table)

¹¹⁶Sn levels from ¹¹⁶Sn(e,e') 73Ph02

E=209 MeV (73Ph02);
E=40-110 MeV, dp/p=0.1% magnetic spectrometer, semi detection (76Li19).
Measured $\sigma(\theta)$ form factor for 2+, 3- (73Ph02,75Le24).
Others: 69Cu06,67Ba52.

E(level)	J π †	Comments
0.0	0+	
1293.54	2+	B(E2) (0-2)=0.229 11, Q=-0.17 4 (76Li19). Other B(E2): 0.183 37 (69Cu06), 0.146 22 (67Ba52). T _{1/2} : 0.42 ps 9 (69Cu06), 0.53 ps 8 (67Ba52).
1760	0+	
2112.26	2+	B(E2) (0-2)=0.0020 1 (76Li19).
2270	3-	B(E3)=0.12 2 (67Ba52), 0.163 13 (76Li19). Other: 69Cu06.
2370	5-	
2400	4+	
2640	2+	
2790	4+	

† From adopted levels.

¹¹⁶Sn levels from ¹¹⁶Sn(p,p')

E=24.5 MeV, s, DWBA (70Be20).
E=6.93 MeV, L=0 IAR (78Ju02).
See 76Ba32 for complementary study: (p,p' γ), E=6.928 MeV, L=0 IAR.
E=6.9 MeV, L=0 IAR; 7.0 MeV, L=2 IAR (67Sc20).
E=11 MeV, s (65A111).
E=55 MeV, s, DWBA (68Ya01).
Others: 67Ma23,68Ko19,68Ma34,73Te02.

E(level)†	J π	T _{1/2}	L#	δ	E(level)†	L#
0.0					3359 10	
1293.5 1	2+		2	0.14	3413 9	2
1756.8‡ 2	0+	45‡ ps 10			3436 10	(4)
2027.3‡ 5	0+	160‡ ps 20			3460 7	
2109 7					3504 7	(4)
2227 7			(2)		3513 10	
2269 7			3	0.189	3574 7	
2367 10			5	0.086	3627 7	4
2390 10			4	0.062	3655 7	
2529 7			4	0.061	3686 10	
2643 10			2		3739 7	
2800 7			4	0.080	3767 7	
2835 7			2	0.033	3802 7	2
2892 9			7		3845 7	(6)
2950 7					3915 7	2
2977 10			(7,8)		3949 7	
3037 7			(4)	0.065	4019 10	(5)
3074 10			(2)		4085 10	
3090 7			(6)		4157 10	
3221 9			(2)		4203 10	
3257 10			(8)		4272 10	
3328 8			(3)			

† Average of 65A111,70Be20.

‡ From 78Ju02.

From DWBA analysis of angular distribution, $\theta=20-120$ (70Be20).

∞ Deformation parameter from DWBA analysis (68Ya01,70Be20).